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## 1.0 GENERAL

### 1.1 SUMMARY

California's Office of Technology Services (OTech) provides a number of database management system (DBMS) technologies on various hardware and operating system platforms. This document provides guidance on using Microsoft SQL Server.

OTech offers MS SQL Server and administration on equipment within the Application Hosting offering. Included in this offering is installation, patching and product maintenance. Staff performs these tasks according to standard procedures and configurations. MS SQL is offered on either a dedicated or shared MS Windows platform. In the shared Windows platform, multiple customers share a single database installation.

OTech supports version(s) of MS SQL in accordance with the OTech Software Version Support Procedure. Failure to migrate off of unsupported versions by predetermined dates may incur additional charges and experience support delays. Refer to the [OTech Procedure 4000 – Software Version Support](#) for details.

### 1.2 REFERENCES

Items referenced here support the information provided in this document.

IDENTIFIER	TITLE
04.13.875	<a href="#">Microsoft SQL Server Submittal</a>
04.17.866	<a href="#">Microsoft Windows Server Submittal</a>
3132	<a href="#">Standard 3132 – Midrange Database Security</a>
4000	<a href="#">Software Version Support Policy</a>
4000	<a href="#">Procedure 4000 – Software Version Support</a>
Website	<a href="#">Contact Information</a>
3138	<a href="#">Standard 3138 - System Administrator Standard</a>
3502	<a href="#">3502 – Information Security Exception Request</a>

### 1.3 SUBMITTALS

#### 1.3.1 General

OTech is available to advise and assist customers in formulating IT designs that will leverage available service offerings. Contact your Account Manager to engage

architectural/engineering and design consulting services. Additional charges may be incurred.

Include the Customer's name, contact information and associated project name on forms, documents, and requests submitted to OTech.

Use the following method for work requests:

Item	Request Method
Quotes & Billable Service	<a href="#">Customer Service System (CSS) Service Request</a>
Modifications to Existing Systems	<a href="#">Service Desk</a> , <a href="#">CSS</a> or <a href="#">Remedy Service Request</a>
Technical Problems	<a href="#">Service Desk</a> or <a href="#">Remedy Incident</a>
Security Related Issues/Incidents	<a href="#">Service Desk</a>
Temporary DBMS Administrator Privilege Request	Information Security Exception Request. Follow procedure outlined in <a href="#">Standard 3132 - Midrange Database Security</a> and <a href="#">Procedure 3502 – Information Security Request</a>

### 1.3.2 Service Request

A completed [MS SQL Server Submittal](#) is required prior to the start of work. To aid in the preparation of providing this technology, all information must be included in the OTech Service Request. Revised submittal(s) must indicate changes, if any.

## 1.4 EXPECTATIONS

### 1.4.1 OTech

OTech manages contract and licensing for DBMS software and serves as liaison between the customer and Microsoft for technical system-level DBMS issues.

Technology products must be within vendor supported versions to sustain availability and integrity. OTech documents end-of-support and will inform Customers of the upgrade plan through OTech Account Managers and E-News notifications.

OTech follows change management practices. Change requests are recorded in the OTech Remedy system, as a Change Request (CRQ). OTech account managers can provide current change procedures.

### 1.4.2 Customer

Customers are expected to maintain logical and physical system design diagram(s) and provide them to OTech upon request. Customers should update the logical and physical system design diagram(s) as the environment(s) are completed and accepted by the Customer.

Customers are expected to understand product lifecycles and collaborate with OTech on upgrades, testing, and verification of their database technology before the end-of-support date. Failure to migrate off of unsupported versions may incur additional charges. Refer to the [Procedure 4000 – Software Version Support](#) for details.

Customers are expected to determine and submit details on hardware capacity needs (e.g., RAM, storage space) and software (e.g., version and edition of MS SQL Server).

Customers are expected to identify and lead the resolution of database problems related to or caused by their applications. System level database problems will be handled by OTech.

## 1.5 SCHEDULING

### 1.5.1 Maintenance Window

MS SQL Server maintenance window is Saturday from 7:00AM to 12:00PM during which time patching or upgrades may occur.

### 1.5.2 Backup

OTech Enterprise Backup Solution performs database backups according to the following schedule:

WHAT	WHEN
Full Backup	Daily
*Transaction Log Backup	Daily, every three hours
Backup Retention	28 days

\*If a different transaction log backup frequency is needed please consult the OTech SQL Server Support Team.

### 1.5.3 Change Management Schedule

MS SQL Server change proposal / requests follow the established OTech Change Management process. Changes require 2-week prior notification. Shorter periods may not always be accommodated. Security related changes adhere to OTech Security Patching and Monitoring Standard.

Additional charges may be incurred for expedited change requests.

## 1.6 DEFINITIONS

Term, phrase, abbreviation	Definition
DBMS	Database Management System
SA	SQL System Administrator
SDK	Software Development Kit
TDE	Transparent Data Encryption

## 2.0 PRODUCTS

Requested products should be identified in the SQL Submittal form listed in 1.3 - SUBMITTALS.

### 2.1 ***MS SQL Server 2016 Components***

1. Database Engine Services
2. Management Tools
3. Documentation Components
4. SQL Server Replication
5. R – Services
6. Full-Text and Semantic Extractions for Search
7. Data Quality Services
8. PolyBase Query Service for External Data
9. Analysis Services
10. Reporting Services - Native
11. Reporting Services - SharePoint
12. Reporting Services Add-in for SharePoint Products
13. Data Quality Client
14. Client Tools Connectivity
15. Integration Services
16. Client Tools Backwards Compatibility
17. Client Tools SDK
18. Distributed Replay Controller
19. Distributed Replay Client
20. SQL Client Connectivity SDK
21. Master Data Services

### 2.2 ***MS SQL Server 2014 Components***

1. Database Engine Services
2. Management Tools
3. Documentation Components
4. SQL Server Replication
5. Full-Text and Semantic Extractions for Search
6. Data Quality Services
7. Analysis Services
8. Reporting Services – Native
9. Reporting Services – SharePoint
10. Reporting Services Add-in for SharePoint Products
11. Data Quality Client
12. Client Tools Connectivity
13. Integration Services
14. Client Tools Backwards Compatibility

- 15. Client Tools SDK
- 16. Distributed Replay Controller
- 17. Distributed Replay Client
- 18. SQL Client Connectivity SDK
- 19. Master Data Services

## **2.3 MS SQL Server 2012 Components**

- 1. Database Engine Services
- 2. Management Tools
- 3. Documentation Components
- 4. SQL Server Replication
- 5. Full-Text and Semantic Extractions for Search
- 6. Data Quality
- 7. Analysis Services
- 8. Reporting Services – Native
- 9. Reporting Services – SharePoint
- 10. Reporting Services Add-in for SharePoint Products
- 11. Data Quality Client
- 12. SQL Server Data Tools
- 13. Client Tools Connectivity
- 14. Integration Services
- 15. Client Tools Backwards Compatibility
- 16. Client Tools SDK
- 17. Distributed Replay Controller
- 18. Distributed Replay Client
- 19. SQL Client Connectivity SDK
- 20. Master Data Services

## **2.4 PLATFORM**

OTech supports MS SQL Server on physical and Virtual MS Windows Platforms.

## 3.0 EXECUTION

### 3.1 SECURITY

#### 3.1.1 Prior to Installation

Requests for SQL Reporting Services will initiate a brief architectural review and may require additional security review.

#### 3.1.2 Post Installation

Customers will be provided database owner (DBO) access or lower to their databases depending on their requirements. Application accounts must have specific roles and/or user permissions that are the lowest needed to perform application functions. Customers must follow CDT's password complexity requirements.

MS SQL Server System Administration (SA) Authority is restricted to OTech designated personnel. Customers may be granted temporary SA rights, post installation, to their installations of MS SQL Server during application installation and server refresh activities. If Customers require extended use of SA privileges, or implementations of transparent data encryption (TDE) and/or replication, an Information Security Exception Request must be submitted. Please follow the procedure outlined in [Procedure 3502 – Information Security Exception Request](#) and adhere to both the [Standard 3132 - Midrange Database Security](#) and [Standard 3138 – System Administrator Standard](#).

Configuration changes made outside the scope delineated above and needing intervention, correction, or troubleshooting by OTech staff may incur additional charges.

Customer with granted SA rights must adhere to the following use restrictions. Failure to comply could result in access revocation.

1. Changing SQL configurations, only OTech SQL staff are permitted to make changes
2. Changing OTech scheduled jobs, only OTech SQL staff are permitted to make changes
3. Creating SQL Agent jobs, only OTech SQL staff may create these jobs
4. Creating user accounts must be performed by or coordinated, prior to creation, with OTech SQL staff
5. Creating Databases must be performed by or coordinated, prior to creation, with OTech SQL staff
6. Changing the SQL Server Service Account is not permitted, this account is owned by OTech SQL staff
7. Changing the SQL System Administrator Account is not permitted, the account is owned by OTech SQL staff



8. Installing SQL Server and Components, only OTech SQL staff are permitted to perform these installations

## **3.2 SUPPORT AVAILABILITY**

The core business hours for MS SQL Server technical support are Monday through Friday 0800 – 1700. State holidays and mandated schedule alterations are observed and may impact staff availability.

## **3.3 QUALITY CONTROL**

MS SQL Server installation requests must be reviewed and approved by OTech.

1. MS SQL Server installation is provided by OTech in accordance with the MS SQL Server Submittal and Microsoft best practices.
2. OTech performs quality assurance checks on installations prior to release to the customer.

### **3.3.1 OTech Responsibilities**

1. Review and approval of submitted information prior to beginning work.
2. Notify Customer of need for any additional information.
3. MS SQL installation, upgrades, patching, and standard configuration.
4. Assist customer in specifying design in accordance with information provided in 1.3 - SUBMITTALS.

### **3.3.2 Customer Responsibilities**

1. Design, develop, deploy, test the database and maintain its interaction with application(s).
2. Submit complete 1.3 - SUBMITTALS information.

## **3.4 INSTALLATION**

### **3.4.1 OTech Responsibilities**

1. System-level administration
2. Assist customers with data migration
3. Maintain data and log file backups
4. Create database user account(s) within MS SQL and assign permissions in accordance with MS SQL Server Submittal
5. Monitor and fine tune DBMS software
6. Review and recommend optional configurations that may better meet capacity and performance requirements in accordance with the MS SQL Server Submittal
7. Perform DBMS version migrations, patching and upgrades

8. Maintain database administration tools
9. Maintain DBMS software/configurations
10. Resolve RDMS system-level problems or seek vendor support for DMBS issues through authorized escalation processes

### **3.4.2 Customer Responsibilities**

1. Define database availability requirements
2. Document database design and application architecture
3. Maintain database dictionaries
4. Respond to notifications provided by OTech staff with mitigating action
5. Maintain application and database statistics
6. Test new maintenance and software releases at user and application levels
7. Submit service request(s) to purchase MS SQL Server licenses or renew maintenance
8. Additional charges for OTech intervention, troubleshooting and correction of unauthorized changes. This may include a pass-thru charge of licensed auditing software used to repair unauthorized changes
9. Create and maintain database objects
10. Load database data required by their application.
11. Application design, maintenance, and migration must adhere to supported software versions
12. Code modifications for customer application and related non-system SQL objects.
13. Provide database scripts, if applicable
14. Notify OTech of Third Party Software application software, components and accessories affecting the DMBS during configuration, tuning and upgrades of the application software